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ABSTRACT

This study tested the ability of the Student Adaptation to College Questionnaire (SACQ) to predict attrition for first-time, full-time freshmen at a predominantly white, medium-sized, liberal arts, denominational college in the southeast. A random sample of 100 students were surveyed of which 84 returned usable questionnaires (57 females, 27 male, 59 white, 23 black, 2 Hispanic). Attrition after 1 and 2 years was 32.1 percent and 55.9 percent respectively. Using logistic regression, five predictive models of the SACQ were tested and compared to other predictors of attrition. The study found that the claim that the SACQ can identify at-risk students in all institutional settings is not supported. Generally, unique combinations of SACQ items were the best predictors of attrition at both 1 and 2 year time intervals. The Attachment subscale of the SACQ did not appear to be an effective predictor of attrition. The best predictors came primarily from the Academic and Social Adjustment subscales. Generally, none of the models predicted attrition with a high degree of accuracy. Colleges should use caution when using the SACQ to target at-risk students for early intervention. (Contains 12 references.) (JB)

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Testing the Limits of the Student Adaptation to College Questionnaire

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Jean Endo
Editor
Forum Publications

Testing the Limits of the Student Adaptation to College Questionnaire

Abstract

The Student Adaptation to College Questionnaire (SACQ) promises to identify "at-risk" students. However, the SACQ's validity for predicting attrition in a wide variety of college environments is relatively unknown. This study tested the ability of the SACQ to predict attrition for first-time, full-time freshmen at a small, comprehensive college. Using logistic regression, several predictive models of the SACQ were tested and compared to other predictors of attrition. The study found the items from the SACQ that best predict attrition are not those identified by the SACQ's developers. Also, the ability of the SACQ to identify at-risk students is not high, and colleges should use caution when using the SACQ to target at-risk students for early intervention.

Testing the Limits of the Student Adaptation to College Questionnaire

Over the last several years, states and the federal government have faced budget shortfalls, resulting in reduced or level funding for higher education. At the same time higher education enrollments have increased, forcing most institutions to do more with less (El-Khawas, 1993). These financially constrained times have been accompanied by a lack of confidence in higher education's integrity and financial responsibility (Erwin, 1991; Ewell, 1991; Johnstone, 1993; Terenzini, 1989). As a result, many states and the federal government have demanded evidence of higher education's stewardship by mandating reporting of retention and graduation rates. Setting aside the argument regarding the appropriateness of these measures, retention and graduation rates will become increasingly important issues for colleges and universities.

While many colleges and universities have acknowledged the value of retention, particularly due to the increasing cost of recruitment, many colleges will be seeking new means of increasing student retention, and consequently, graduation. One new method colleges may turn to is the Student Adaptation to College Questionnaire (SACQ) which promises to identify "at-risk" students. The SACQ, if an effective measure, will not only aid retention, but will help colleges and universities to make better use of limited resources such as counseling/psychological services, tutoring services, and student personal growth and development programs. Verification of the SACQ's predictive validity is particularly important given the paucity of studies supporting this use.

To date, four studies have been reported on the SACQ's ability to predict attrition, three of which were reported by the SACQ's authors utilizing one college (Baker & Siryk, 1980, 1984, 1986; Krotseng, 1992). In 1980, Baker and Siryk reported on the correlation between scores on a developmental version of the SACQ and attrition. For one cohort of entering freshmen, they found significant ($p<.01$) negative correlations between first (-.18) and second (-.34) semester adjustment as measured by the SACQ and attrition in the junior year. For a second cohort, they found significant ($p<.01$) negative correlations between first (-.33) and second (-.34) semester adjustment and attrition in the sophomore year.

In a follow-up to the 1980 report, Baker and Siryk (1984) reported on the attrition of freshmen after one year of college. Reporting on the same cohorts as in 1980 plus one additional cohort, Baker and Siryk found significant ($p<.01$) negative correlations between first and second semester adjustment scores on general and social subscales and the full scale of the SACQ, and attrition after one year. The general subscale on this developmental version of the SACQ corresponds closely to the goal attainment/institutional attachment subscale of the SACQ.

Baker and Siryk (1986) found 44.7% of less well-adjusted and 16.7% of well-adjusted students dropped out of college by the beginning of their eighth semester. Less well-adjusted and well-adjusted in this study were defined as scoring ± 1 SD on one of the SACQ subscales.

Finally, Baker and Siryk, in the SACQ Manual (1989), provide a summary of the correlations between SACQ scales and attrition after one year in college for four cohorts of entering freshmen. Significant ($p<.01$) negative correlations were found between the attachment subscale and attrition after one year of college for first semester administrations of the SACQ for all four cohorts. Similar results were found for the social adjustment subscale and the full scale except for one cohort in which there was no significant correlation between social adjustment and attrition. The other subscales showed a less consistent relationship with attrition.

Krotseng (1992) studied the predictive validity of the SACQ alone and the combination of the SACQ and first-semester college grade point average. Using discriminant analysis to test the predictive validity of the SACQ alone, Krotseng found the SACQ items predicted attrition after one year with 71% accuracy. Krotseng also studied the predictive validity of the SACQ using cluster groups based on a combination of attachment and first-semester GPA, each grouped into high, average, and low. For the two cohorts of entering freshmen studied, Krotseng found that student attrition increased consistently from the high attachment/high GPA cluster to the low attachment/low GPA cluster. Furthermore, using discriminant analysis Krotseng found the classification accuracy for each of the clusters in the two cohorts ranged from 93.6% to 100% and from 78.3% to 100%.

Based on these limited studies, the SACQ correlates with student retention. However, there are several reasons to question the claim that the SACQ can successfully predict attrition in any college setting. First, these studies, which only represent two colleges, hardly constitute a representative sample of colleges or college students in the United States. Second, only Krotseng's study tests the predictive validity of the SACQ. The studies of Baker and Siryk demonstrate a correlation between institutional attachment items on the SACQ and retention after one year, but the results are explanatory rather than predictive. Third, early intervention is important in preventing attrition. Krotseng included first-semester grade point average of freshmen as a variable in predicting retention which may be available too late for purposes of intervention.

This study tested the ability of the SACQ to predict attrition for first-time, full-time freshmen. Questions which this study sought to answer include: a) Is the SACQ an accurate predictor of attrition at this college? b) Does the SACQ predict attrition? c) Does the institutional attachment subscale of the SACQ predict attrition? d) Does some combination of SACQ items predict attrition better than the SACQ subscales? e) Is the SACQ a better predictor of attrition when combined with student background characteristics such as high school GPA? f) Are high school GPA, SAT scores, race, and gender better predictors of attrition than the SACQ? g) Is the SACQ a better predictor of attrition after one, two, or three years? Specifically, the study hypothesized the following:

H_1: The SACQ items predict attrition of first-time, full-time freshmen. Previous studies of freshmen by Baker and Siryk (1980, 1984, 1986) and Krotseng (1992) indicate SACQ scores correlate with attrition. If the SACQ is generalizable to all college students, then the SACQ should predict attrition for freshmen at any four-year college or university.

H_2: The SACQ Institutional Attachment subscale predicts attrition better than other SACQ subscales. Baker and Siryk (1989) state that the Institutional Attachment subscale of the SACQ "focuses primarily on the quality of the relationship or bond between the student and institution" (p. 1). The Institutional Attachment subscale is the only SACQ scale which

consistently correlated with attrition after one year (Baker & Siryk, 1989). Thus, the Institutional Attachment subscale should be a better predictor of attrition than other SACQ scales.

H_3: The combination of the SACQ and high school GPA predicts attrition better than the SACQ alone. Baker and Siryk (1989) warn that the SACQ should not be used in isolation. Krotseng (1992) found that when the SACQ was combined with first-semester college GPA the accuracy of predicting attrition increased significantly. However, waiting until the end of the first semester in college may be too late to provide appropriate intervention for at-risk students. Astin's (1993a) national study of college students found that high school GPA was the strongest predictor of academic achievement and degree completion. Therefore, the combination of the SACQ and high school GPA should be an effective predictor of attrition.

H_4: The SACQ and high school GPA predict attrition better than the combination of high school GPA, SAT math and verbal scores. Astin (1993a) found the SAT math and verbal scores were the strongest predictors of degree completion following high school GPA. If the SACQ is a valuable asset in predicting attrition then it should predict attrition better than variables that are currently available to most colleges and universities.

H_5: The SACQ and its subscales, or in combination with high school GPA, predict attrition after one year more accurately than attrition after two years. Baker and Siryk (1980) found a somewhat stronger correlation between the SACQ and attrition in the sophomore year than in the junior year. Since the SACQ is a measure of student adjustment to college at a particular point of time, it is expected that the ability of the SACQ to predict attrition decreases over time.

Method

Subjects

The subjects were first-time, full-time freshmen at a predominantly white (74.4%), medium-sized (headcount approximately 2,400), liberal arts, denominational college in the Southeast. One hundred students were randomly sampled of which 84 returned usable

questionnaires (57 female, 27 male; 59 white, 23 black, 2 hispanic). Attrition after one and two years was 32.1% and 55.9% respectively.

Measures

Attrition. Attrition was measured as of the institution's official enrollment date for the fall semester in 1992 (for one-year attrition) and 1993 (for two-year attrition).

Student Adaptation to College Questionnaire. The SACQ consists of 67 statements, worded both positively and negatively. Students respond to each statement by circling one of nine asterisks representing a continuum ranging from "applies very closely to me" to "doesn't apply to me at all." The AutoScore Form of the SACQ was used. The AutoScore Form is a standard, paper-and-pencil instrument in the form of a sealed booklet. On the outside of the instrument are the 67 items of the questionnaire, and inside is a scoring form onto which the scores are copied as the student marks the form. The form is used to correctly assign each item to a subscale. The scores are then compared to first or second semester norms for males and females. The SACQ is divided into four subscales, three (Academic Adjustment, Social Adjustment, and Personal-Emotional Adjustment) which measure the demands of a college experience, and a fourth subscale (Goal Commitment/Institutional Attachment) which measures commitment to educational and institutional goals and attachment to the institution the student is attending.

Student background characteristics. Student background characteristics including high school GPA, SAT math and verbal scores, gender, and race were measured and coded as reported by Astin (1993b). High school GPA was measured as an eight-point ordinal scale with A or A+ equal to eight, A- equal to seven, B+ equal to six, and so on with D or less equal to one. Scholastic aptitude scores were used as reported. Sex was dummy coded with female equal to two and male equal to one. Race was dummy coded as four race variables (White, Native American, African-American, and Chicano); subjects from a racial group were coded two otherwise they were coded one.

Procedure

The SACQ was distributed by the researcher during the eighth week of the semester, prior to a weekly convocation for all full-time students. Subjects were asked to complete the questionnaire prior to the program, and to return the SACQ to the researcher following the program. Student identification numbers provided on the SACQ form were used to match background information contained in student records.

Initially, because of its ability to distinguish between groups, stepwise discriminant analysis was used to determine which SACQ items and subscales were significant in predicting attrition. The Box's *M* test indicated the group covariance matrices were not equal for the SACQ items which violates an assumption required for discriminant analysis. Therefore, logistic regression was used to test all hypotheses since it is also useful for predicting group membership and requires less stringent assumptions than discriminant analysis. Prediction models for both one- and two-year attrition were run.

Results

Log-odds coefficients and goodness-of-fit measures for each of the models are reported in Table 1. In predicting attrition after one year, item 16 (I am pleased now about my decision to attend this college in particular) and item 44 (I am attending classes regularly) were identified as the most significant predictors of attrition by stepwise discriminant analysis prior to conducting the logistic regression. In predicting attrition after two years, item 14 (I have had informal, personal contacts with college professors), item 29 (I really haven't had much motivation for studying lately), item 37 (I feel that I have enough social skills to get along well in the college setting), and item 44 (I am attending classes regularly) were identified as the most significant predictors of attrition. The usefulness of models 1 and 5 in predicting attrition are approximately the same.

Stepwise discriminant analysis initially identified the Attachment subscale as the only significant predictor of attrition. Examining the results of logistic regression for the Attachment

TABLE 1. Logistic Regression Predicting Attrition

	One-Year Attrition				Two-Year Attrition			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Item 14†					-.3030**	-.2763*		
Item 16	-.3226**	-.2928*						
Item 29					-.2320*	-.2564*		
Item 37					.6193**	.6639**		
Item 44	-.3486	-.3005			-.5412*	-.4826		
Attachment			-.0352*				-.0117	
High School GPA		-.0100		-.1148		-.1249		-.1304
SAT math				-.0049				-.0085*
SAT verbal				.0017				.0035
Female				-.0539				.2581
White				5.5541				7.0484
African-American				6.0522				7.5447
Hispanic				5.7672				5.6109
Intercept	4.3659*	3.8698*	2.8460	-21.7476	2.8540	2.7363	.2943	-24.5389
Model χ^2	12.636**	9.685*	4.872*	5.743	26.425***	22.825***	.800	11.569
Pseudo R^2	.131	.110	.068	.068	.239	.226	.009	.129
% correctly predicted	75.0	73.08	65.48	65.38	76.1	79.49	58.33	69.23
N	84	78	84	78	84	78	84	78

* p<.05 ** p<.01 *** p<.001

†Statements that correspond to the SACQ item numbers are as follows:

Item 14 "I have had informal, personal contacts with college professors."

Item 16 "I am pleased now about my decision to attend this college in particular."

Item 29 "I really haven't had much motivation for studying lately."

Item 37 "I feel that I have enough social skills to get along well in the college setting."

Item 44 "I am attending classes regularly."

subscale (models 3 and 7), it is a less accurate predictor of attrition than a combination of items from the SACQ. Attachment is a better predictor of attrition after one year than two years, although Attachment is not as good a predictor as a unique combination of SACQ items.

Including high school GPA with SACQ items that were significant predictors showed mixed results. In predicting attrition after one year, including high school GPA (model 2) slightly decreased predictive ability, while including high school GPA (model 6) to predict attrition after two years slightly increased predictive ability. The results indicate the SACQ with or without high school GPA is a better predictor of attrition after one and two years than Astin's (1993b) model for predicting bachelor's degree completion in four years (models 4 and 8).

Examining the best models for predicting one- and two-year attrition (models 1 and 2, and 5 and 6), the SACQ is a better predictor of attrition after two years than one year based on the model χ^2, explained variation, and percent of cases correctly predicted.

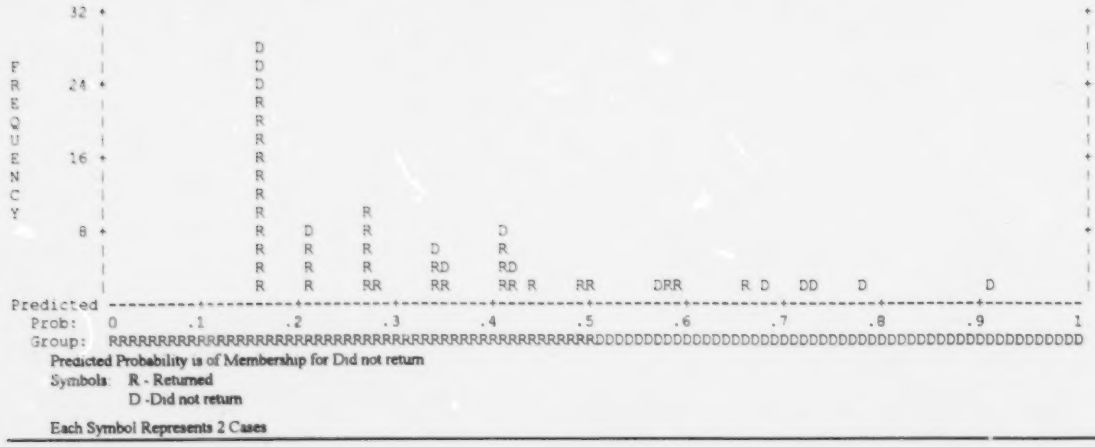
A Test of the Model

The best model (model 1) for predicting attrition after one year, performed slightly better than knowing the prior probability of attrition (32.1%) for the sample. Examination of the predicted probabilities based on this logistic regression model (Figure 1) indicates that in predicting attrition, a probability of 0.7 or higher may be a good level for identifying at-risk students; all subjects with probabilities above this level were not retained after one year.

To test this model using a probability of 0.7 or higher to identify at-risk students, it was applied to a sample of first-time, full-time freshmen who were administered the SACQ by mail in the middle of the fall 1993 semester. A total of 113 (41.5%) of 272 students returned usable questionnaires. The respondents consisted of 84 females, 29 males, 2 asian, 31 black, 1 hispanic, 77 white, and 2 other students. Pre-registration for the fall 1994 semester was used as an indicator of attrition after one year.

Using the logistic regression equation for model 1, the probability of attrition was calculated for each respondent. Specifically, the model identified 21 of the 113 respondents as at-

Figure 1. Observed Groups and Predicted Probabilities for Model 1


32
24
16
8
FREQUENCY
Predicted
Prob: 0 .1 .2 .3 .4 .5 .6 .7 .8 .9 1
Group: RRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRDDD

variation. The weaknesses of these models was further borne out by the test of the logistic equation for one year attrition (model 1) which did not predict attrition with a high degree of accuracy on a second sample of first-time, full-time freshmen. This model should be tested again after actual fall enrollment is known, however, since pre-registration may in part reflect student optimism in returning to college rather than reality.

In sum, the claim that the SACQ can identify at-risk students in all institutional settings is not supported. Thus, institutions seeking new ways to identify and target at-risk students with interventions should use the SACQ with caution. Users will want to carefully weigh the cost of the SACQ and its usefulness in comparison to other more readily accessible measures which might identify at-risk students equally well.

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